On the Orbit of γ Centauri. By J. E. Gore.

The measures of this southern binary star appear at first sight rather discordant. A closer examination, however, shows that the companion is revolving in a very elongated apparent ellipse, the real orbit being not only highly inclined to the line of sight but having a considerable eccentricity. I find that a complete revolution has been nearly performed since the star was measured by Sir John Herschel at the Cape in the years 1835 and 1836. Herschel's measures are somewhat discordant, ranging from 346·8 to 361·97; but measures in recent years show that if the position-angle was anything near 360° in 1835 and 1836, the distance between the components would have been nearly 2″, and they would have been easily divided with the 5-inch refractor used by Herschel. He estimated the distance, however, at only 0″·75, and says in the notes to his measures, "At least as close as *γ Virginis*; 273 barely elongates it . . . far too difficult for this telescope . . . excessively close and difficult." These remarks show that the distance could not have been anything like 2″ when Herschel measured it, and hence the position-angle must have been less than 360°, the motion being retrograde and not direct as Herschel supposed.

I have computed the orbit by the Glasenapp-Kowalsky method, and find the following provisional elements:—

Elements of γ Centauri.

P = 61·88 years	$\Omega = 177^\circ\ 57'$
T = 1840·84	$\lambda = 46\ 49$
$e = 0{\cdot}6316$	$a = 1''{\cdot}50$
$i = 84^\circ\ 6'$	$\mu = -5^\circ{\cdot}817$

P and T have been deduced from Herschel's measure at the epoch 1835·89, and Pollock's in 1889·323. The measures from 1856 to 1889 give a period of 62·68 years, and T = 1840·22, a close agreement.

The following is a comparison between the measures and the positions computed from the above elements:—

Epoch.	Observer.	θ_o	θ_c	$\theta_o - \theta_c$	ρ_o	ρ_c	$\rho_o - \rho_c$
1835·32	Sir J. Herschel	351°·6	355°·4	−3°·4	...	0″·98	...
1835·89	,,	354·3	354·3	0·0	0·75	0·87	−0·1
1836·38	,,	357·3	353·5	+3·8	...	0·78	...
1856·20	Jacob	20·6	22·3	−1·7	0·7 est.	0·48	+0·22
1857·973	,,	13·71	16·37	−2·66	1·11	0·65	+0·46
1860·684	Powell	12·8	11·5	+1·3	...	0·89	...
1870·233	,,	6·9	4·8	+2·1	1·5 est.	1·59	−0·09

Epoch.	Observer.	θ_o	θ_c	$\theta_o-\theta_c$	ρ_o	ρ_c	$\rho_c-\rho_c$
		°	°	°	″	″	″
1871·386	Russell	3·8	4·3	−0·5	1·18	1·66	−0·48
1873·364	,,	4·2	3·6	+0·6	2·29	1·76	+0·53
1874·260	,,	1·6	3·3	−1·7	1·61	1·80	−0·19
1876·63	Ellery	8·5	2·6	(+5·9)	1·3	1·88	−0·58
1880·44	Russell	1·3	1·6	−0·3	1·39	1·97	−0·58
1882·22	Tebbutt	2·1	1·1	+1·0	...	...	...
1887·526	Pollock	358·5	359·6	−1·1	1·75	1·89	−0·14
1887·583	Tebbutt	359·1	359·6	−0·5	1·76	1·89	−0·13
1888·22	,,	360·4	359·44	+0·96	1·56	1·86	−0·30
1888·325	,,	...	359·41	...	1·70	1·86	−0·16
1888·335	,,	358·9	359·41	−0·51	1·83	1·86	−0·03
1888·605	,,	...	359·3	...	2·73	1·85	+0·88
1888·61	,,	359·7	359·3	+0·4	...	1·85	...
1889·323	Pollock	359·1	359·1	0·0	1·87	1·81	+0·06
1890·361	Tebbutt	359·0	358·8	+0·2	1·84	1·76	+0·08

According to the above orbit the distance is now rapidly diminishing, and about the year 1901 will be reduced to about 0″·05, when it will probably pass beyond the reach of all existing telescopes.

Assuming the mass of the system to be equal to the mass of the Sun, the "hypothetical parallax" will be

$$\pi = aP^{-\frac{2}{3}} = 0''\cdot096$$

For a mass equal to twice the Sun's mass, the parallax would be 0″·076.

Note on the Orbit of α Centauri. By E. B. Powell, M.A., C.S.I.

In the *Monthly Notices*, No. 6, of April 1886, I submitted a paper on the orbit of α *Centuari*, in which the following elements were put forward :—

P = 87·438 years	$\gamma = 79^\circ\ 47'\ 8''$
T = 1875·447	$\Omega = 25\ 49\ 38$
e = ·544326	$\lambda = 48\ 59\ 17$

and at the end of the paper I pointed out that in six or eight years, provided careful observations were taken, it would probably become apparent whether the period of that binary included only some seventy-six years or extended over eighty-six years or more. I cannot help thinking that now the evidence is